



AF/2123

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Docket No: Q53854

RECEIVED

Yukio NAKAJIMA

JUN 09 2004

Appln. No.: 09/269,972

Group Art Unit: 2123 Technology Center 2100

Confirmation No.: 1844

Examiner: Eduardo Garcia-OTERO

Filed: April 8, 1999

For: TIRE DESIGN METHOD, OPTIMIZATION ANALYZING APPARATUS, AND  
STORAGE MEDIUM HAVING STORED OPTIMIZATION ANALYZING PROGRAM

**REPLY BRIEF PURSUANT TO 37 C.F.R. § 1.193(b)**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 1.193(b), Appellant respectfully submits this Reply Brief in response to the Examiner's Answer dated April 7, 2004. Entry of this Reply Brief is respectfully requested.

**POINTS RAISED IN EXAMINER'S ANSWER**

Appellant respectfully requests that the Board reverse the Examiner's rejection of all claims on appeal, or in the alternative, reopen prosecution on the basis of one or more new grounds of rejection provided in the Examiner's Answer as discussed below. 37 C.F.R. § 1.193(a)(2) prohibits the entry of a new ground of rejection in an Examiner's Answer. In the Examiner's Answer, the Examiner first newly cites Figures 31A and 31B of Kamegawa et al. as

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disclosing a non-linear correspondence between design parameters of a tire (i.e., a non-linear objective function). Prior to the Examiner's Answer, the Examiner did not reference these Figures as the basis for the rejection (or their corresponding discussion in the Kamegawa patent), but now uses these Figures as the majority basis for the rejection of the claims having this feature (see pages 12 and 13 of the Examiner's Answer). Specifically, prior to the Examiner's Answer, only Figure 2 was mentioned as the basis for Kamegawa allegedly disclosing a non-linear objective function. In fact, the Examiner acknowledges that Kamegawa does not explicitly disclose a non-linear objective function (see page 12 of the Examiner's Answer), but has maintained that the "objective function" shown in Figure 2 of Kamegawa should be interpreted broadly as disclosing both linear and non-linear objective functions (see, for example, the November 3, 2003 Advisory Action at paragraph 7).

New to this prosecution, the Examiner now states that one of ordinary skill in the art would interpret Kamegawa as disclosing a non-linear objective function because of the disclosure of Figures 31A and 31B (see pages 12 and 13 of the Examiner's Answer). Appellant submits that the purpose of the prohibition of the entry of a new ground of rejection in an Examiner's Answer provided for by 37 C.F.R. § 1.193(a)(2) is because the Appellant would not have a fair opportunity to react to the rejection (see MPEP 1208.01). Notwithstanding the lack of technical correctness behind the Examiner's reasoning using newly cited Figures 31A and 31B, as a matter of fairness, the MPEP advises that the Examiner should reopen prosecution. Accordingly, Appellants respectfully request that prosecution be reopened. As far as the technical merit of the Examiner's comments, Appellant respectfully observes that it would

appear that the Examiner does not fully understand how the term "non-linear" is used in the present application. The present invention is directed towards nonlinear optimization, whereas Kamegawa deals with linear optimization. Appellant is not asserting that, with regards to the mapping function illustrated in Fig. 31A, Kamegawa deals with linear optimization. In other words, Appellant's argument does not revolve around whether the mapping function is linear or non-linear. Instead, the Appellant is asserting that Kamegawa deals with the optimization of a solution space having an extreme value, as illustrated in Fig. 8 of Kamegawa. In contrast, the present invention relates to the optimization of a solution space having multiple extreme values, as shown in Fig. 9. In other words, the conversion system neural network requires design parameters via the optimization calculations of a solution space having multiple extreme values. Kamegawa does not relate to the optimization of a solution space having multiple extreme values, as seen in the present invention. The Examiner attached definitions of linear and non-linear by citing a McGraw-Hill Dictionary, however, this does not consider the definitions as known by those skilled in the art. In this technical field, it is common knowledge that the term linear optimization refers to the optimization of a solution space having an extreme value; whereas non-linear optimization refers to the optimization of a solution space having multiple extreme values.

Next, the Examiner further provides new arguments in response to another argument contained in Appellant's Brief. Specifically, the Examiner previously asserted that the "adaptive function" feature of claims 7, 13, and 19 was taught by Figure 39A and specifically decision block 216 "To Be Mutated" (see page 8, paragraph 32 of the December 18, 2002 Office

Action). In response, Appellant has maintained that this “mutation” refers to a change in the design variable, and not to the claimed adaptive function (see April 17, 2003 Response, for example, at page 6 as well as page 9, last paragraph of Appellant’s Brief). In the Examiner’s Answer, the Examiner newly argues that the term “mutated” should be interpreted in the context of the entire Figure 29 (see page 14 of the Examiner’s Answer) and now newly refers to element 206 as disclosing the “adaptive function” limitations of claims 7, 13, and 19. Appellant submits that this is another new grounds for rejection and a basis by itself for reopening prosecution to allow Appellant a chance to discuss the new reason for rejection.

With respect to claims 8 and 14, the Examiner argues that Figure 29 discloses a mutation technique, which was previously not argued as a basis for the rejection. Appellant maintains their argument of what the Kamegawa patent discloses with respect to the features of these claims as discussed in Appellant’s Brief. In light of the Examiner’s continuing use of newly cited sections of this commonly assigned patent to support the Examiner’s prior non-substantive rejections, Appellant respectfully requests that prosecution be reopened in order to fully address each of the new grounds for rejection.

Regarding the Tang reference cited by the Examiner with regards to these claims, as seen in the flowchart of Fig. 5 of the present application, the processing conducted in the present application from start to step 130 involves using a neural network to estimate the number of extreme values of a solution space. In step 132, the genetic algorithms and linear planning method of Kamegawa are employed in the optimization.

REPLY BRIEF PURSUANT TO 37 C.F.R. § 1.193(b)  
U.S. Application No. 09/269,972

Attorney Docket No. Q53854

The Examiner indicates that using the invention recited in Tang in order to modify the invention recited in Kamegawa '718 constituted, at the time of invention, an easy matter for those skilled in the art. Appellant submits that even if, for example, the genetic algorithm of Kamegawa '718 was modified into a multi-layered feed forward type neural network, it is not possible to perform the optimization shown in step 132 of the present invention. For this reason, Appellant submits that the Examiner's argument is technically incorrect with regards to Tang.

Finally, Appellant submits that neural networks and optimization belong to different technological fields, and the combination and non-linear optimization of these is what constitutes the conception behind the present invention. Appellant asserts that it would be difficult even for those skilled in the art to conceive of this combination.

### CONCLUSION

For the above reasons as well as the reasons set forth in Appellant's Brief on Appeal, Appellant respectfully requests that the Board reverse the Examiner's rejections of all claims on Appeal. An early and favorable decision on the merits of this Appeal is respectfully requested.

Respectfully submitted,

  
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Ronald Kimble  
Registration No. 44,186

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

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